

CLAIMS

1. A method for balancing load in a telecommunications system supporting Mobile IP, said system comprising at least one home agent for supporting the mobility of at least one mobile node, **characterized** by comprising the steps of

adding one or more secondary home agents to the telecommunications system in addition to one primary home agent supporting said at least one mobile node, and

transmitting packets destined for said at least one mobile node when needed via one or more secondary home agents.

2. A method as claimed in claim 1, **characterized** by comprising the steps of

processing in the primary home agent the messages, such as the registration requests, sent from said at least one mobile node or a foreign agent serving the mobile node in a visited network,

sending a routing request to a secondary home agent for transmitting the packets destined for said at least one mobile node in response to receiving a registration request that is acceptable from the mobile node or from the foreign agent serving the mobile node in the visited network, and

intercepting and tunneling the packets destined for said at least one mobile node by the secondary home agent in response to the routing request.

3. A method as claimed in claim 1 or 2, **characterized** by comprising the steps of

updating ARP and tunneling configurations of the secondary home agent supporting IPv4 protocol, or neighbour discovery configurations and tunneling configurations of the secondary home agent supporting IPv6 protocol, and

intercepting and tunneling the packets destined for said at least one mobile node by means of the updated ARP and tunneling configurations or the neighbour discovery and tunneling configurations.

4. A method as claimed in any one of the preceding claims, **characterized** by comprising the steps of

collecting loading information by monitoring the number of packets transmitted by the primary home agent, and

transmitting packets destined for said at least one mobile node via one or more secondary home agents for balancing the load in response to the number of transmitted packets exceeding a predetermined threshold value.

5 **characterized** by

using the primary home agent's IP address as the source address of packets transmitted from the secondary home agent and the mobile node's care-of address as the destination address.

10 **characterized** by comprising the steps of

transmitting packets destined for said at least one mobile node via the primary home agent in response to receiving an acceptable registration request from said at least one mobile node or the foreign agent serving the mobile node in the visited network,

15 sending a routing request to the secondary home agent for transmitting the packets destined for said at least one mobile node,

intercepting and tunneling the packets destined for said at least one mobile node by the secondary home agent in response to the routing request, and

20 stopping packet transmission to said at least one mobile node via the primary home agent.

7. A method as claimed in any one of the preceding claims, **characterized** by comprising the steps of

25 sending a stop forwarding request to the secondary home agent in response to the fact that the mobility binding to said at least one mobile node is released or the registration lifetime of the mobile node expires, and

stopping the packet transmission to said at least one mobile station via the secondary home agent in response to the stop forwarding request.

30 **characterized** by comprising the steps of

sending information on the duration of packet transmission to the secondary home agent, and

35 stopping the packet transmission to said at least one mobile node via the secondary home agent in response to the fact that the time indicated in the sent information expires.

9. A telecommunications system comprising at least one home agent for supporting the mobility of one or more mobile nodes, **characterized** in that

5 the telecommunications system comprises at least one secondary home agent in addition to the primary home agent supporting said at least one mobile node, and

the telecommunications system is arranged to transmit packets destined for said at least one mobile node via at least one secondary home agent when needed.

10 10. A telecommunications system as claimed in claim 9, **characterized** in that

said primary home agent is arranged to process messages, such as registration requests, sent from said at least one mobile node or a foreign agent serving the mobile node in a visited network,

15 said primary home agent is arranged to send a routing request to at least one secondary home agent for transmitting packets destined for said at least one mobile node in response to receiving a registration request that is acceptable from the mobile node or the foreign agent serving the mobile node in the visited network, and

20 at least one secondary home agent is arranged to intercept and tunnel the packets destined for said at least one mobile node in response to the routing request.

11. A telecommunications system as claimed in claim 10, **characterized** in that

25 at least one secondary home agent supports IPv4 protocol and is arranged to update its ARP and tunneling configurations, or said at least one secondary home agent supports IPv6 protocol and is arranged to update its neighbour discovery configurations and tunneling configurations in response to the tunneling request, and

30 at least one secondary home agent is arranged to intercept and tunnel the packets destined for said at least one mobile node by means of the updated ARP and tunneling configurations or the neighbour discovery and tunneling configurations.

35 12. A telecommunications system as claimed in claims 9 to 11, **characterized** in that

said primary home agent is arranged to collect loading information by monitoring the number of packets it transmitted, and

- 5 to balance the load, the telecommunications system is arranged to transmit the packets destined for said at least one mobile node via at least one secondary home agent in response to the number of transmitted packets exceeding a predetermined threshold value.

13. A telecommunications system as claimed in claims 9 to 12, **characterized** in that

- 10 said primary home agent is arranged to send a stop forwarding request to the secondary home agent in response to the fact that the mobility binding with said at least one mobile node is released or the registration lifetime of the mobile node expires, and

- 15 at least one secondary home agent is arranged to stop the packet transmission to said at least one mobile node in response to the stop forwarding request.